H = Hourly heat input in mmBtu, as calculated using the procedures in section 5 of appendix F of this part.

Uf=1/385 scf CO2/lb-mole at 14.7 psia and 68 °F.

3. Procedures for Estimating CO_2 Emissions From Sorbent

When the affected unit has a wet flue gas desulfurization system, is a fluidized bed boiler, or uses other emission controls with sorbent injection, use either a CO_2 continuous emission monitoring system or an O_2 monitor and a flow monitor, or use the procedures, methods, and equations in sections 3.1 through 3.2 of this appendix to determine daily CO_2 mass emissions from the sorbent (in tons).

3.1 When limestone is the sorbent material, use the equations and procedures in either section 3.1.1 or 3.1.2 of this appendix.

3.1.1 Use the following equation to estimate daily CO_2 mass emissions from sorbent (in tons).

$$SE_{CO_2} = W_{CaCO_3} F_u \frac{MW_{CO_2}}{MW_{CaCO_3}}$$

(Eq. G–5)

where,

SE_{CO2}=CO_2 emitted from sorbent, tons/day.

W_{CaCO3}=$CaCO_3$ used, tons/day.

F_u=1.00, the calcium to sulfur stoichiometric ratio.

MW_{CO2}=Molecular weight of carbon dioxide (44).

MW_{CaCO3}=Molecular weight of calcium carbonate (100).

3.1.2 In lieu of using Equation G–5, any owner or operator who operates and maintains a certified SO_2-diluent continuous emission monitoring system (consisting of an SO_2 pollutant concentration monitor and an O_2 or CO_2 diluent gas monitor), for measuring and recording SO_2 emission rate (in lb/mmBtu) at the outlet to the emission controls and who uses the applicable procedures, methods, and equations in §75.15 of this part to estimate the SO_2 emissions removal efficiency of the emission controls, may use the following equations to estimate daily CO_2 mass emissions from sorbent (in tons).

$$SE_{CO_2} = F_u \frac{W_{SO_2}}{2000} \frac{MW_{CO_2}}{MW_{SO_2}}$$

(Eq. G–6)

where,

SE_{CO2}=CO_2 emitted from sorbent, tons/day.

MW_{CO2}=Molecular weight of carbon dioxide (44).

MW_{SO2}=Molecular weight of sulfur dioxide (64).

W_{SO2}=Sulfur dioxide removed, lb/day, as calculated below using Eq. G–7.

F_u=1.0, the calcium to sulfur stoichiometric ratio.

and

$$W_{SO_2} = SO_{2o} \frac{\%R}{(100 - \%R)} \qquad \text{(Eq. G–7)}$$

(Eq. G–7)

where:

WSO_2=Weight of sulfur dioxide removed, lb/day.

SO_{20}=SO_2 mass emissions monitored at the outlet, lb/day, as calculated using the equations and procedures in section 2 of appendix F of this part.

%R=Overall percentage SO_2 emissions removal efficiency, calculated using Equations 1 through 7 in §75.15 using daily instead of annual average emission rates.

3.2 When a sorbent material other than limestone is used, modify the equations, methods, and procedures in Section 3.1 of this appendix as follows to estimate daily CO_2 mass emissions from sorbent (in tons).

3.2.1 Determine a site-specific value for F_u, defined as the ratio of the number of moles of CO_2 released upon capture of one mole of SO_2, using methods and procedures satisfactory to the Administrator. Use this value of F_u (instead of 1.0) in either Equation G–5 or Equation G–6.

3.2.2 When using Equation G–5, replace MW_{CaCO3}, the molecular weight of calcium carbonate, with the molecular weight of the sorbent material that participates in the reaction to capture SO_2 and that releases CO_2, and replace W_{CaCO3}, the amount of calcium carbonate used (in tons/day), with the amount of sorbent material used (in tons/day).